

REMARKS

In accordance with the foregoing, claims 1-10 are amended, and new claims 12-18 are presented.

Claims 5 and claim 6 are amended so as to be dependent on only claims 2 or 3.

New dependent claims 12-15 are presented to recite features of originally filed claims 5/1, 6/1, 5/4, and 6/4 respectively.

Claims 1, 4, and 7 are amended to recite "wherein a band of said first wavelength and said second wavelength are not included in the band of said optical filter." (See, for example, page 18, lines 4-11, and page 19, lines 6-11).

New dependent claims 16-18 are presented that recite "both edge components of said spectrally broadened light corresponding to the shortest wavelength and the longest wavelength are not included in the band of said optical filter." (See, for example, page 18, lines 4-11, and page 19, lines 6-11).

No new matter is presented, and accordingly approval and entry of the foregoing amended and added claims are respectfully requested.

Claims 1-18 are pending and under consideration.

PAGES 3-4: ALLOWABLE SUBJECT MATTER

The Examiner indicates that claims 2, 3, 5/2, 5/3, 6/2, 6/3, 8, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of limitations of the base claim and any intervening claims.

Applicant thanks the Examiner for the indication of allowable subject matter.

Claims 2, 3, 8, and 9 are amended herein so as to be rewritten in independent form. Dependent claims 5/1, 5/3, 6/2, and 6/3 are amended herein to be in a form indicated to be allowable by the Examiner.

Withdrawal of the objection is requested.

PAGE 2: OBJECTION TO CLAIM 5

The Examiner objects to claim 5 because of an informality that "there is no antecedent support for the term "the signal light and the probe light to be input into the optical AND gate" when this claim is dependent on claim 4."

Claim 5 is amended herein so as not to be dependent on claim 4. Withdrawal of the

objection is requested.

Further, new claim 14 that replaces claim 5/4 is written so as to have proper antecedent support from claim 4.

PAGES 2-3: REJECTION OF CLAIMS 1, 4, AND 7 UNDER 35 U.S.C. §102(b) AS BEING ANTICIPATED BY U.S. PATENT 5,150,248 TO ALFANO ET AL

PAGES 3-4: REJECTION OF CLAIMS 5/1, 5/4, 6/1, 6/4, 10 AND 11 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER ALFANO

The Examiner rejects independent claims 1, 4, and 7 under 35 U.S.C. §102(b) as being anticipated by Alfano, and rejects dependent claims 5/1, 5/4, 6/1, 6/4, 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Alfano.

Claims 1, 4, and 7, all as amended, recite, respectively, an optical AND gate, a waveform shaping device, and a waveform shaping method, using claim 1 as an example, including "a nonlinear optical medium inputting signal light having a first wavelength and probe light having a second wavelength different from the first wavelength and producing cross phase modulation of the probe light with the signal light to thereby output spectrally broadened light; and an optical filter extracting light including a modulated component of the signal light and having a band narrower than the band of the spectrally broadened light, from the spectrally broadened light, wherein a band of said first wavelength and said second wavelength are not included in the band of said optical filter."

As provided in MPEP §706.02 entitled Rejection on Prior Art, anticipation requires that the reference must teach every aspect of a claimed invention.

Alfano does not support an anticipatory-type rejection by not describing features recited in the present application's independent claims.

For example, Alfano does not discuss a gate "wherein a band of said first wavelength and said second wavelength are not included in the band of said optical filter."

According to an aspect of the present invention, since a second wavelength is not included in a band of the optical filter, the small-chirp component including noise and the excessive-chirp component are not included in the output signal pulse. (See, for example, page 19, lines 6-11.)

Further, according to an aspect of the present invention, since a band of the first wavelength is not included in the band of the optical filter, amplitude fluctuations are suppressed. (See, for example, page 18, lines 4-11.)

Thus according to an aspect of the present invention, the amplitude fluctuations are suppressed and a small-chirp component, including noise, and an excessive-chirp component are not included in an output signal pulse.

These features are not discussed by Alfano.

Rather, Alfano merely discusses an optical gate 93 including an optical filter 103 for extracting light including a modulated component of the signal light.

Further, contrary to the present invention, Alfano, see for example, col. 12, lines 49-59, discusses the optical filter 103 allows only pulses of frequency ($f_0 + \Delta f$) to pass through. The frequency ($f_0 + \Delta f$) of the pulses is different from a frequency (f_0) of a signal light 107, but is included in a band of the frequency (f_0).

Accordingly, Alfano discusses an optical gate 93 that can perform an and-processing between the signal light 107 and a probe light 105, but does not suppress amplitude fluctuations.

Regarding, the rejection of dependent claims 5/1, 5/4, 6/1, 6/4, 10 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Alfano, as provided in MPEP §2143.03 "(t)o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F. 2d 1981, (CCPA 1974)."

Applicants submit that given that features of the present invention as recited by each of the independent claims are not discussed by Alfano. For example, since Alfano does not discuss a method that suppresses amplitude fluctuations as the present invention, there is no motivation to modify Alfano in a manner as the Examiner suggests.

Conclusion

Since features recited by independent claims 1, 4, and 7 are not discussed by the cited art, and *prima facie* obviousness is not established regarding the rejection of dependent claims 5/1, 5/4, 6/1, 6/4, 10 and 11 is not established, the rejections should be withdrawn and claims 1, 4, 5/1, 5/4, 6/1, 6/4, 7, 10, and 11 allowed.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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